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(54) **WIDEBAND RADIAL POWER
COMBINER/DIVIDER FED BY A MODE
TRANSDUCER**

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333/127, 128, 136

See application file for complete search history.

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(57) **ABSTRACT**

A radial power combiner/divider capable of a higher order (for example, N=24) of power combining/dividing and a 15% bandwidth (31 to 36 GHz). The radial power combiner/divider generally comprises an axially-oriented mode transducer coupled to a radial base. The mode transducer transduces circular TE₀₁ waveguide into rectangular TE₁₀ waveguide, and the unique radial base combines/divides a plurality of peripheral rectangular waveguide ports into a single circular TE₀₁ waveguide end of the transducer. The radial base incorporates full-height waveguides that are stepped down to reduced-height waveguides to form a stepped-impedance configuration, thereby reducing the height of the waveguides inside the base and increasing the order N of combining/dividing. The reduced-height waveguides in the base converge radially to a matching post at the bottom center of the radial base which matches the reduced height rectangular waveguides into the circular waveguide that feeds the mode transducer.

13 Claims, 9 Drawing Sheets

